

A NEW ARBORICOLOUS *THYREODON*  
FROM COSTA RICA  
(HYMENOPTERA ICHNEUMONIDAE: OPHIONINAE).

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Through courtesy of Daniel H. Janzen of the Department of Biology at the University of Pennsylvania, I have received for study a new *Thyreodon* of the *Atricolor* group (Porter 1984), reared by him in Costa Rican Tropical Deciduous Forest at Santa Rosa National Park. I herewith describe this ecologically aberrant *Thyreodon*.

1. *Thyreodon santarosae* Porter, new species  
(Figs. 1, 2)

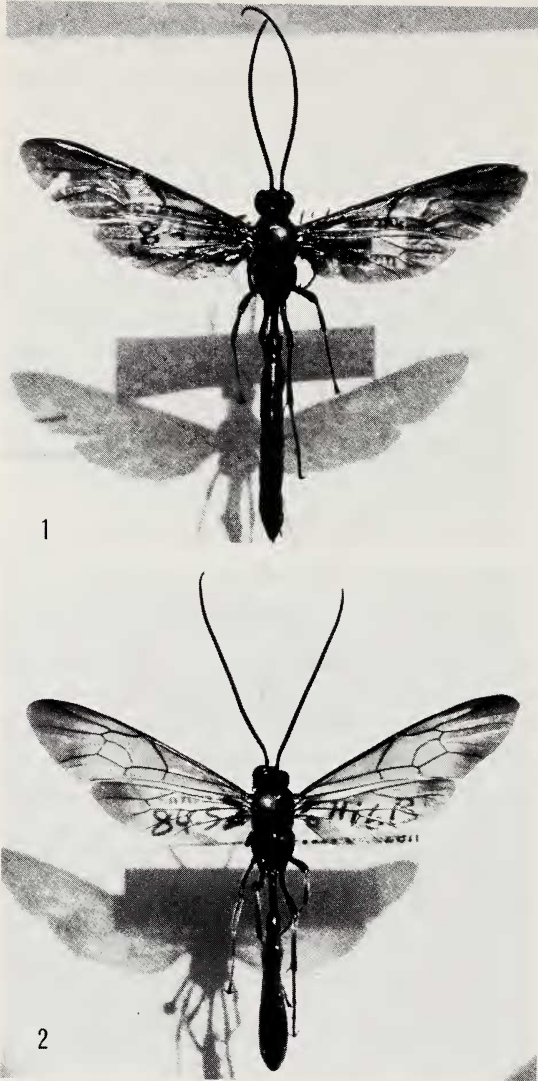
FEMALE. *Color*: antenna varying from almost all black to extensively dusky, brown, or dull yellowish brown; head and body shining black to brownish black (more lustrous on gaster) and with variably developed, diffuse, dull to (occasionally) light brown staining that usually is best developed on mandible and on gastric tergites 2 and 3 in part; legs sometimes entirely black or often with variable brownish suffusion on coxae and trochanters, trochantelli and femora shining medium brown with some dusky staining, and tibiae and tarsi dull pale brown with dusky only on last tarsomere; wings varying from almost entirely blackish to subdued golden yellow with blackish on apical 0.3 of fore wing, sometimes also near base of fore wing, as well as on apical 0.3 of hind wing and conspicuously (but often not extensively) in anellan cell of hind wing.

*Length of fore wing*: 15.6–19.0 mm. *Flagellum*: with 57–60 segments; 1st segment 2.0–2.3 as long as deep at apex. *Mandible*: with numerous, medium sized to large, basally denser, but mostly well discrete punctures. *Malar space*: 0.54–0.63 as long as basal width of mandible. *Temple*: 0.70–0.88 as long as eye in dorsal view; rounded

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Figs. 1 and 2. *Thyreodon santarosae*, ♀. Paratypes. Dorsal views of entire insects. Fig. 1. Morph with dark wings and dark legs. Fig. 2. Morph with largely yellowish wings and partly pale legs. Note that males resemble females in dorsal view.

off and not receding or slightly expanded behind eyes. *Occipital carina*: bent mesad well above base of mandible, not approaching hypostomal carina. *Clypeus*: with abundant, commingled small to large punctures, most of which are separated by conspicuous smooth interspaces. *Lateral ocellus*: 0.77–0.90 as long as OOL. *Mesoscutum*: notauli not crested near base, broad and shallow, often (not always) becoming much weaker apicad, traceable 0.8 length of mesoscutum, scarcely convergent rearward; surface shining with numerous, small to medium sized, sharp punctures that are mostly separated by at least their diameters and sometimes in general by more than their diameters. *Scutellum*: high, convex, and shining with mostly subadjacent to adjacent small to medium sized, sharp punctures and with lateral carinae developed only at its base. *Mesopleuron*: sternaulus faint but usually percurrent; surface shining and with abundant, medium sized to small, sharp punctures that are mostly subadjacent to a little reticulately adjacent on lower 0.5 but which average slightly sparser on upper 0.5; speculum smooth and polished. *Lower metapleuron*: dully shining with small to medium sized, sharp, subadjacent punctures and some coarse peripheral wrinkling. *Propodeum*: swollen, contours rounded, the dorsal, lateral, and apical faces not sharply discrete; basal face shining with long and dense appressed grayish setae, its median field gently swollen and with the punctures very dense and tiny, its lateral field more shining with larger and more widely spaced punctures that expose much polished integument basad; lateral face with long and dense appressed setae and sometimes with variably developed moderately strong and mostly longitudinal wrinkles, as well as always with abundant medium sized, mostly subadjacent to adjacent (or sometimes extensively adjacent) punctures; apical face in comparison to rest of propodeum at least in large part contrastingly smooth and brilliantly polished with tiny punctures that emit long but little overlapping setae and often with many long and oblique, well separated and rather fine wrinkles.

MALE. *Color*: shows same range of variation as noted for female and, in addition, is marked with dull to bright yellow as follows: usually on basal 20–25 flagellomeres below (becoming duller distad); with a small to large ventral blotch on scape; on as little as 0.5 to as much as almost all of face (and sometimes also on

much of interantennal crest), except for brown on antennal sockets, brown also on a large to very large, quadrangular to (more often) dorsally narrowed median facial blotch (which is occasionally reduced to a small pale brown tinge and which sometimes, when conspicuous, surrounds a yellow area along clypeo-frontal suture), and also brown on a large to small or even obsolete area in and (frequently) above and below anterior tentorial pit, which may be confluent dorsally with the median brown facial area; sometimes also with yellow in malar space and broadly bordering hind orbit to as much as upper 0.2 of eye; and yellow also on most of clypeus except for its pale brown apical margin (clypeus rarely in large part brown with yellow only laterad); on most of basal 0.7 of mandible; on maxillary palpomeres 1-3; sometimes on an antero-ventral fore coxal blotch; occasionally on a small dorso-lateral mid coxal blotch; on a broad antero-dorsal stripe on fore and sometimes mid trochanters (yellow on mid trochanter often dull and weakly developed); sometimes also antero-dorsally on fore and mid trochantelli; on a broad antero-dorsal front femoral stripe; and rarely also on part of mid femur antero-dorsally.

*Length of fore wing*: 14.6-18.5 mm. *Malar space*: 0.63-0.71 as long as basal width of mandible. *Hind tarsus*: segments 1-4 beneath with setae longer and denser than in female, pale gray, obliquely outstanding, closely packed, 0.4 as long as depth of tarsomeres. *Clasper*: in lateral view with dorsal margin on apical 0.46 broadly concave; dorso-apical angle semi-acute (not spiniform) and slightly upcurved; apical margin reclivously oblique; apico-ventral angle blunt. Other characters as described for female.

TYPE MATERIAL. Holotype ♂: COSTA RICA, Guanacaste Province, Santa Rosa National Park, D. H. Janzen, 1984 (Washington). Paratypes: 13♀ and 9♂: same data as Holotype: 2♀ (Washington), 1♀ and 1♂ (Cambridge), 1♀ (College Station), 1♀ and 1♂ (Gainesville), 1♀ and 1♂ (Lawrence), 1♀ and 1♂ (London), 1♀ and 1♂ (Los Angeles), 1♀ and 1♂ (New York), 1♀ and 1♂ (Ottawa); 1♀ and 1♂ (Philadelphia); 1♀ and 1♂ (Townes); 1♀ (Porter).

VARIATION. *Thyreodon santarosae* shows unusually marked intrapopulation variability in wing and leg color. This variation correlates appreciably but imperfectly with sex. Of the 13♀ examined, 10 have the wings predominantly yellow and in 9 of these

specimens all the tibiae and tarsi are pale brown (legs wholly black in the 10th yellow-winged ♀), whereas both wings and legs are black in the 3 remaining ♀. Among the 10 ♂, 1 has yellow wings but dark legs, 1 black wings but pale legs, and 8 both black legs and wings.

**RELATIONSHIPS.** *Thyreodon santarosae* belongs to the *Atricolor* group of *Thyreodon* (Porter 1984). This assemblage includes robust species with inflated temples, often weakly impressed notauli, and without a transverse or longitudinal crest at the anterior end of the notauli. It has several undescribed Sonoran, Middle American, Caribbean and South American species plus the Nearctic *T. atricolor* (Olivier), the Sonoran *T. fernaldi* Hooker, and *T. ornatipennis* Cresson from the Mexican wet tropics.

*Thyreodon santarosae* differs most trenchantly from its relatives in the extensively smooth and polished apical propodeal face (hind face of propodeum coarsely reticulo-rugose in *T. atricolor* and *T. fernaldi*, finely and densely puncto-reticulate in *T. ornatipennis*). Other diagnostic features are its laterally almost ecarinate scutellum; smooth speculum; and relatively sparse (mostly subadjacent or more distant) mandibular, clypeal, mesoscutal, and mesopleural punctures.

**FIELD OBSERVATIONS AND HOSTS.** Santa Rosa National Park, the type locality, is in Tropical Deciduous Forest at 250–350 m on the Pacific Coast of Guanacaste Province, Costa Rica. Daniel H. Janzen reared the entire type series from “larvae of Saturniidae in the Subfamily Ceratocampinae . . . collected at 3–20 m above the ground” (personal communication). The parasites emerged during April to December 1984. No individuals of *T. santarosae* were obtained by hand nets or Malaise Traps.

This species appears to be unique among *Thyreodon* for its apparent restriction to intermediate and higher strata of a Tropical Forest community and because it attacks ceratocampine caterpillars. Most other *Thyreodon* fly close to the ground or around understory shrubs at no more than 2 m altitude, and the only previous rearing data for this genus involve sphingid Lepidoptera that pupate in the ground (Porter 1984).

**SPECIFIC NAME.** For Costa Rica's Santa Rosa National Park, where Dan Janzen has found enthusiastic support for his ecological studies.



## COLLECTIONS

Listed below are the collections in which type material of *T. santarosae* is to be deposited. Institutional collections are coded by the names of the cities where they are housed, individual collections according to the surnames of their owners.

- CAMBRIDGE. Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.
- COLLEGE STATION. Department of Entomology, Texas A&M University, College Station, TX 77843.
- GAINESVILLE. Florida State Collection of Arthropods, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville FL 32602.
- LAWRENCE. Department of Entomology, Snow Entomological Museum, The University of Kansas, Lawrence, KS 66045.
- LONDON. Department of Entomology, British Museum (Natural History), Cromwell Road, London, SW7 5BD, England.
- LOS ANGELES. Natural History Museum, Los Angeles County Museum of Natural History, Exposition Park, 900 Exposition Boulevard, Los Angeles, CA 90007.
- NEW YORK. Department of Entomology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024.
- OTTAWA. Canadian National Collection, Biosystematics Research Institute, Agriculture Canada, Ottawa, K1A 06C, Canada.
- PHILADELPHIA. Department of Biology, University of Pennsylvania, Philadelphia, PA 19104.
- TOWNES. American Entomological Institute, c/o Dr. Virendra Gupta, Division of Plant Industry, Florida Department of Agriculture and Consumer Services, Gainesville FL 32602.
- PORTER. Collection of Charles C. Porter, 301 North 39th Street, McAllen, TX 78501.
- WASHINGTON. Department of Entomology, U. S. National Museum, NHB 168, Washington, DC 20560.

## ACKNOWLEDGMENTS

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## SUMMARY

*Thyreodon santarosae* n. sp. differs from its relatives in the *Atricolor* species group by having the hind propodeal face broadly polished. It was obtained only by rearing from ceratocampine saturniids (Lepidoptera) in Tropical Deciduous Forest at Santa Rosa National Park in northeast lowland Costa Rica. Host larvae were collected at 3–20 m in the forest overstory. Other known *Thyreodon* are active near ground level and those few that have been reared parasitize sphingid Lepidoptera.

## LITERATURE CITED

- PORTER, C. 1984. *Laticinctus* group *Thyreodon* in the northern Neotropics. *Wasmann Journal of Biology* 42: 40–71..